

*ORNITHODORUS MOUBATA*, MURRAY,  
IN RELATION TO RELAPSING FEVER  
IN THE GOLD COAST

BY

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The carrier of African tick fever *Ornithodoros moubata*, which Brumpt (1922) definitely states does not convey *Sp. recurrentis*, appears to be absent from the Gold Coast and consequently cannot have played any part in the recent outbreak of relapsing fever at Accra. An opportunity, however, was given of testing the efficiency of this species as a carrier of the strain of spironemata causing the epidemic in the Gold Coast, when a consignment of *O. moubata*, hailing originally from Rhodesia, was received in September at Accra from the Liverpool School of Tropical Medicine, thanks to the courtesy of Dr. J. W. Scott Macfie.

The ticks were kept unfed in the incubator for ten days after their arrival, so that they might recover from an apparent state of lethargy induced probably by the conditions encountered on their journey. On the 14th September eighteen of the ticks were placed on a pouched rat, *Cricetomys gambianus*, Waterhouse, which had been inoculated with blood from a case of relapsing fever and was showing a heavy infection with spironemata. Almost all the ticks employed were recovered in an engorged condition the next morning and were despatched at once to Liverpool, where they arrived safely, but, according to information received from Dr. Macfie, failed to convey infection to two rabbits and a monkey upon which they fed. The remaining ticks of this consignment, sixteen in number, were divided into two lots, which were placed upon two different pouched rats that had been inoculated on the 7th September from a case of relapsing fever and which showed numerous spironemata in their blood. On the 15th September, the morning after they had been

placed upon the rats these ticks were returned to the incubator, where they were kept until the 2nd October. On this date, all the surviving ticks which had fed on the two infected rats on the 14th September, were placed upon a clean pouched rat. Next morning, however, as only one or two of them seemed to have fed they were again returned to the incubator and the feeding was repeated upon the same rat on the 16th and 30th October by which time the number of ticks had been reduced to four owing to the propensity of the rat to devour them. Thick films of blood from this rat were examined daily from the beginning of the feeding experiments till the 22nd November but spironemata were never found in them and preparations made from the body fluid of the four surviving ticks, which had presumably fed on the rat on one of the occasions on which it was exposed to their attack, failed to show spironemata.

On the 30th November eleven specimens of *O. moubata* from a second consignment, kindly forwarded by Dr. Macfie, were placed on a pouched rat which was showing spironemata abundantly in its blood. Only eight of these ticks, of which five were engorged, were recovered on the following morning and were placed in the incubator. On the 4th December, fourteen fresh ticks were placed on the same rat, which was still showing a few spironemata in its blood; all of these ticks, eight being engorged, were recovered on the morning following and placed in the incubator.

Seven of the ticks, which had been placed on the infected rat on the 30th November, were placed on a clean pouched rat on the 13th December. Unfortunately, only two of them could be found the next morning and neither appeared to have fed. The blood of this rat never showed spironemata in thick films which were examined daily till the end of December.

On the 20th December the ticks which had been placed on the infected rat on the 4th December were placed on another clean pouched rat; eleven of them were recovered on the following morning and were returned to the incubator, several being in an engorged condition. As this last rat experimented with did not show spironemata in thick films of its blood examined daily up to the 4th January, it was on that date again exposed to the bites of fifteen *O. moubata* which had fed previously on infected *C. gambianus*, yet no spironemata were found after this second exposure to the

attacks of ticks, which had every opportunity of becoming infected, although the blood of the rat was examined daily until the 31st January.

It would appear from these feeding experiments that *Ornithodoros moubata*, Murray, is not an efficient carrier of the spirochetes causing the recent epidemic of relapsing fever in the Gold Coast.

#### REFERENCES

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- SELWYN-CLARKE, P. S., LE FANU, G. H., and INGRAM, A. Relapsing Fever in the Gold Coast. *Ann. Trop. Med. & Parasitol.*, Vol. XVII, pp. 389-426.